

REMARKS

Please reconsider the application in view of the following remarks. Applicant thanks the Examiner for carefully considering this application.

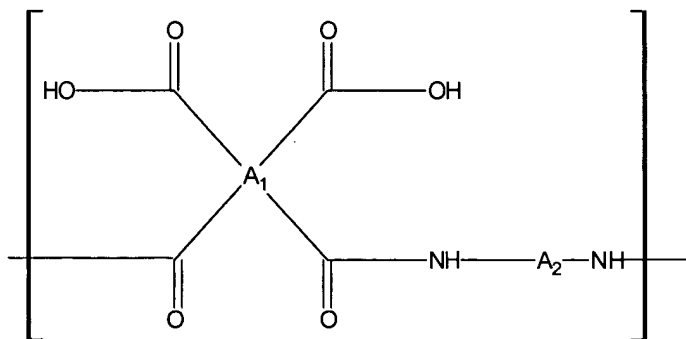
Rejection(s) under 35 U.S.C § 102

Claims 1-7 were rejected under 35 U.S.C. § 102(b) as being anticipated by JP 08-044062. This rejection is respectfully traversed.

One aspect of the invention relates to resin compositions. A resin composition as recited in claim 1 includes a polyimide precursor and a photosensitizer. The polyimide precursor has a polymer structure unit represented by formula (1) below, wherein the chemical structure represented by A₁ includes an aromatic compound and the chemical structure represented by A₂ includes an alicyclic compound. Specifically, A₁ is biphenyl (formula (2)), and A₂ is cyclohexane (formula (3)) or 4,4'-methylenebiscyclohexane (formula (4)). The polyimide precursor has an imidization degree of 7.5% to 36% as determined by:

$$\text{equation (a)} = (\text{PS}_1/\text{PS}_2) / (\text{PI}_1/\text{PI}_2) \times 100$$

wherein PS₁ and PI₁ represent the absorbance of the imide ring before and after complete imidization, respectively, and PS₂ and PI₂ represent the absorbance of the chemical structure A₂ in formula (1) before and after complete imidization, respectively.



Formula (1)

In accordance with embodiments of the invention, imidization of no less than 7.5% in the polyimide precursor is selected to have good resistance to the developing solution of the un-irradiated portion of the polyimide precursor (specification, p. 14, lines 4-7), while imidization of

no more than 36% in the polyimide precursor is selected so that a resin film can be easily prepared from the composition (specification, p. 33, lines 7-9).

Another aspect of the invention relates to processes for forming a resin film. A process as recited in claim 5 comprises the steps of (i) coating an object on which a resin film is to be formed with a resin composition of claim 1; (ii) exposing the resin film to light to form a latent image, (iii) developing the resin film; and (iv) heating the resin film to imidize the polyimide precursor.

Another aspect of the invention relates to processes for preparing a resin composition. A process as recited in claim 6 or claim 7 comprises: (i) reacting 1,4-diaminocyclohexane (claim 6) or 4,4'-methylenebis(cyclohexylamine) (claim 7) with an aromatic dianhydride in a solvent to form a salt; (ii) reacting a resin solution containing the salt at a temperature of 80 °C – 150 °C; (iii) reacting the resin solution at a temperature of 160 °C – 250 °C to a desired imidization degree; and (iv) adding a photosensitizer to the resin solution to give a resin composition.

In contrast, JP 08-044602, as pointed out by the Examiner, discloses a radiation sensitive resin composition comprising a *polyisoimide* prepared by reaction of a polyamic acid (selected from diaminodicyclohexylmethane and 3,3',4,4'-benzophenonetetracarboxylic dianhydride) with Ac₂O and 2,3,4-trihydroxybenzophenone 1,2-naphthoquinonediazido-5-sulfonate. The polyisoimide has units represented by formula I and/or formula II as main repeating units. (Abstract).

Note that *polyisoimide* disclosed in JP 08-044602 is chemically distinct from the *polyimide* precursor recited in claims 1 and 5 of the present invention. JP 08-044602 also fails to disclose a specific range (i.e., 7.5% - 36%) of imidization, as required by claims 1 and 5 of the present invention. Furthermore, JP 08-044602 does not disclose processes for making resin compositions as recited in claims 6 and 7. In particular, JP 08-044602 fails to disclose the specific temperature range for the formation of a desired degree of imidization and the addition of a photosensitizer.

To anticipate a claim, the reference must teach every element of the claim. See M.P.E.P. § 2131 and *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631 (Fed. Cir. 1987) (“A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference”).

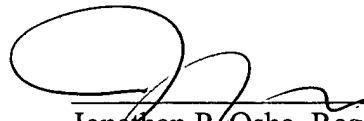
Because JP 08-044602 fails to show or suggest limitations of the present invention as

recited in claims 1 and 5-7, these claims are patentable over JP 08-044602. Claims 2-4, which depend, directly or indirectly, from claim 1, are allowable for at least the same reasons. Accordingly, withdrawal of this rejection is respectfully requested.

Applicant believes this reply is fully responsive to all outstanding issues and places this application in condition for allowance. If this belief is incorrect, or other issues arise, the Examiner is encouraged to contact the undersigned or his associates at the telephone number listed below. Please apply any charges not covered, or any credits, to Deposit Account 50-0591 (Reference Number 03310.034001).

Respectfully submitted,

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